

and cleistogamous flowers. This form has been observed at various points in New England, and always at places where the typical form is also known to occur. As it presented no difference of foliage, its status as a variety has been subject to suspicion. Some months ago Mrs. H. A. Penniman of South Braintree, Massachusetts, having detected its peculiar character, sent specimens of the variety *abortiva* to the Gray Herbarium. On learning of its doubtful status, she undertook a careful observation of the variety and species as they occurred about her summer home at Brewster, Massachusetts. She has now found that individuals, which during the spring and summer exhibit the character of the typical form, frequently, if not normally, develop, in early autumn, the cleistogamous racemes from their upper axils and become transformed into the so-called var. *abortiva*. This is accordingly shown to be merely a late state of the typical plant, fully analagous, in fact, to the autumnal cleistogamous state of our common violets. Mrs. Penniman's observations are substantiated by an excellent suite of specimens deposited in the Gray Herbarium. — B. L. ROBINSON.

## TRICHOLOMA PORTENTOSUM.

H. WEBSTER.

AMONG the species of *Tricholoma* which have come into favor with the mycophagists of eastern Massachusetts is *Tricholoma portentosum* Fries, an edible toadstool which is usually abundant in late autumn, when, as was the case this year, October and half of November pass without the coming of severe frost. Practically confined to pine woods, or at least to woods of coniferous trees, it there appears in such quantities as in many places to alter the look of the needle-strewn ground. At intervals of a few yards the pine needles are pushed up from below in loose heaps, beneath which clumps of the gray-topped mushrooms stand in a measure protected from the frost; or the caps are raised quite through the needles and the thick white or yellowish white stems stand out against the brown background. As the caps are sticky at first, they carry up with them some of the pine needles, which remain firmly attached even after the surface has become quite dry. In woods where the carpet of needles is soft and thick, however, the fungus does not so plainly betray its presence, ex-



cept to the squirrels. They know it, and probably are on the watch for it, for it is one of their regular autumn foods, which they can use while storing away their winter supply of nuts. But for these foragers, who scratch away the pine needles and drag the mushrooms to a convenient mound, where they leave the remnants of their feast scattered about, or who tuck pieces of the caps in the forks of neighboring bushes, or under projecting ends of bark on the trunks of the pines, the fungus might often escape notice. Such evidence should provoke a search, which will always be rewarded, though the searcher may have to drop upon all fours and scratch like the squirrels before he finds what he is after.

Though what has been said ought almost to be enough to make this autumn *Tricholoma* recognizable, for in the writer's experience, there is no other toadstool, about Boston at least, to which the same remarks would apply, some further note of its characteristics had best be given. As is true of the genus, it has no ring, and its lamellæ, slightly attached to the stem, show the regulation notch or sinus with which anyone who would know *Tricholoma* must become familiar. The lamellæ are broad, white, often with a tinge of yellow at the outer end; the stem is firm, white, or nearly so, sometimes hollow, especially in mature specimens, but frequently nearly solid, or showing merely a looseness of structure in the interior; the cap is smooth and slightly uneven and irregular, often a little shiny, and beautifully streaked with long innate fibrils that extend outward from the centre and deepen the grayish or brownish violaceous tint of the surface. In the older specimens the thin pellicle bearing these fibrils often becomes a little broken up and ragged, and can easily be stripped clean from the white flesh. The fungus has no odor, or scarcely any, though its taste when raw is slightly farinaceous. It is remarkably free from the attacks of insect larvæ, owing in part, no doubt, to the late season of its fruiting. Its size is from two to four inches broad; the stem is at least half an inch thick, and sometimes double that, and two to five inches long.

Like so many of our agarics, *Tricholoma portentosum* is a species of the Old World as well as of the New, having been studied and described by Fries in the early part of this century. As given by the Swedish mycologist, the European habitat of the species is the same as that described for it in New England, where it is, to use Fries's statement, "a common species in pine woods, growing in late autumn in company with *Tricholoma equestre*." The latter is a brownish yellow



toadstool also with a sticky cap, but with yellow gills, rather conspicuous and distinguished looking, as the name implies, which has likewise become favorably known to discerning mycophagists. Notes on it may be found in RHODORA I: 57.

With the species just mentioned *T. portentosum* is placed in the group *Limacina*, which includes all the members of the genus which have a viscid cap. This characteristic is of great significance in this genus, yet apt to be overlooked by a novice in such matters, partly from inattention, and no doubt, also, because it is not always apparent in dry weather. On this point the warning, uttered by Fries (*Hymenomyces Europæi*, p. 47), is worth repeating: "Those without experience should be careful not to neglect the very natural sub-divisions of this group, or to imagine that the term *pileus viscid*, though the viscosity may disappear in dry weather, is of slight importance; there is no single mark more essential than this, for it depends upon the original structure of the pellicle of the pileus."

To the neglect of this characteristic is probably due the fact that *T. portentosum* is usually confounded with *T. terreum*, though the latter species has a pileus that is always dry. In consequence of this confusion, it is probable that the range of the species is much greater than might be supposed from its recorded distribution. Fries himself, as late as the time of publication of his *Icones*, twenty-five years ago, after he had observed the species for fifty years, expressed his surprise that such a "common and thoroughly distinct species" had escaped the notice of earlier authors.

How widely the species is distributed in the country is not at present known. It has been found in New Hampshire as well as in Massachusetts, and I think also in Maine and in Connecticut. Probably it will be found throughout New England. Yet Mr. Peck, in a recent letter to the writer, says that he has not found it in New York.

In Fries's description [*Icones* I: 21.] the following points are noted, which are equally true of the fungus as found with us.

"Solitary or gregarious, or even more rarely forming dense clusters, odorless, taste mild. Stem remarkably fleshy-fibrous throughout, subequal, naked, but streaked with fibrils, white. Pileus fleshy, thin in comparison with the stocky stem, at first convex, then plane, somewhat umbonate, unequal and repand, viscid, streaked with dark innate fibrils, but even, glabrous, commonly smoky in color, but varying to violaceous, livid, and in old age becoming pale; margin always naked, thin. Flesh white, slightly inclining to yellowish, fragile. Lamellæ



rounded, almost free,  $\frac{1}{4}$  to 1 inch broad, distant, at first white then becoming yellowish or grayish-pallid." Fries's figure [Icones, pl. 24], might have been drawn from New England specimens.

It may be added that the spores are white, narrowly oblong-elliptical, 3 to  $3\frac{1}{4}$   $\mu$  broad by  $4\frac{1}{2}$  to 6  $\mu$  long.

*Tricholoma terreum* Schæff. is a species of the group *Genuina*, characterized by a rough fibrillose or scaly pileus which is never in the least sticky. It commonly shows browner tints than *T. portentosum*, frequently has a strong farinaceous smell, and shows cinereous tints in the lamellæ and on the stem. Placed side by side the two species can easily be told apart by a glance at the pileus, in one case smooth and virgate, in the other rather rough and scurfy. The absence of viscid-ity in *T. terreum* is, however, the point to which attention must be directed. The spores are white, broadly elliptical, 4 to 5  $\mu$  broad by 6 to 7  $\mu$  long.

The species is frequent in woods of deciduous trees, but is also found in pine woods. About Boston it is, apparently, not so common as *T. portentosum*, at least it is not so often collected.

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#### ERRATA.

- Page 12, line 5; *for* Wissentliche *read* Wissenschaftliche.  
 " 47, " 3; " var. " forma.  
 " 80, " 5; " generally " genera.  
 " 85, " 27; " Nuttal " Nuttall.  
 " 87, " 1; " ANGUSTIFOLIA " ANGUSTIFOLIA.  
 " 100, " 38; " De. Ton. " De Ton.  
 " 109, last line; " 1899 " 1889.  
 " 164, line 6; " cm. " mm.  
 " 174, " 38; " Harbor by Mr. C. F. Grover *read* Ossipee by  
 Mr. F. O. Grover.  
 " 188, last line; *for* 38 *read* 138.  
 " 190, line 29; *for* from *read* remote from.  
 " 196, line 24; " charactetistic *read* characteristic.  
 " 198, lines 13 and 23; *for* *ideaus* *read* *idaeus*.  
 " 212, last line; *for* *Vol. 1* *read* *Vol. 2*.  
 " 215, line 36; *for* *Rhyncospora* *read* *Rhynchospora*,  
 " 220, " 15; " *Daenstedia* " *Dennstaedtia*.  
 " 225, " 5; " shrubbery " shrubby.

*Vol. 2, No. 23, including pages 213 to 226, was issued November 9, 1900.*